

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:
EVERS, ET AL.

Confirmation Number: 7547

Application No.: **10/566,649**

Group Art Unit: 1791

Filed: June 22, 2006

Examiner: ABRAHAM, Amjad A.

Title: INJECTION MOLDING APPARATUS AND METHOD FOR THE USE OF SUCH
AN INJECTION MOLDING APPARATUS

REPLY TO RESTRICTION REQUIREMENT

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action mailed February 25, 2009, the period for reply being March 25, 2009, Applicant hereby elects the invention of Group I, claims 1-16 and 23-25, drawn to an injection molding apparatus. This election is made with traverse.

Applicant respectfully traverses the restriction requirement because it fails to comply with 37 CFR §§ 1.499 and 1.475. "Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression 'special technical features' shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art." § 1.475(a)

The Office Action alleges that the inventions of Groups I and II are drawn to an injection molding apparatus utilizing a drive connection comprising a planetary roller, and a method for manufacturing an injection molded product using a planetary cage as the drive unit. [See Office Action, pg. 2].

According to § 1.475(b), "[a]n international or a national stage application containing claims to different categories of invention ***will be considered to have unity of invention*** if the claims are drawn only to one of the following combinations of categories: ... (4) A process and an apparatus or means specifically designed for carrying out the said process." (emphasis added). "An apparatus or means is specifically designed for carrying out the process when the apparatus or means is suitable for carrying out the process with the technical relationship being present between the claimed apparatus or means and the claimed process." MPEP § 1893.03(d). Thus, Applicant submits that a lack of unity is not proper in this instance, and that the inventions of Groups I and II should both be examined.

The Office Action, however, asserts that the special technical feature "is the use of an injection molding apparatus to manufacture molded products which comprises a screw connected with two controllable electric motors via planetary rollers rotatable in a planetary cage." [Office Action, pg. 2]. And the Office Action asserts that:

This technical feature is taught by Butsch et al. (US Pre-Grant Publication 2004/0116218 A1) which discloses a planetary roller drive system that can be used in conjunction with an injection molding machine and connected to a drive mechanism, motors, rotors, and a planetary roller held in a carrier. (See abstract, figure 1, and paragraph [0013]). Butsch teaches the use of the planetary roller to convert a rotational movement into an axial movement. Butsch further envisions that the planetary drive roller system can be used in an injection molding machine as part of the adjustable drive mechanism. (See paragraph 0013 and claim 10).

[Id, emphasis in original].

Applicant disagrees with these assertions for at least reasons (i) that the Office Action appears to have misunderstood the special technical features of the invention; and (ii) that the cited portions of Butsch do not teach these features.

First, Applicant submits that the special technical feature is not merely a planetary roller drive system that can be used in conjunction with an injection molding machine which converts a rotational movement into an axial movement. Instead, independent claim 1 recites:

An injection molding apparatus, comprising:

a central control;

a screw which extends in a cylinder, the cylinder comprising a filling opening and a nozzle, the screw being drivingly connected to first and second controllable electric motors by a driving connection such that ***a movement in rotational and/or axial direction can be imposed on the screw***, the driving connection comprising a number of cylindrical planetary rollers accommodated for rotation in a planetary cage such that the planetary rollers can be engaged from a space located radially outside the planetary cage and a space located radially within the planetary cage, the planetary cage being connected to the screw in a manner secured against rotation and translation;

a first drive part, connected to a rotor of the first electric motor, comprising a first engaging surface facing radially inward which engages the planetary rollers from the space located radially outside the planetary cage; and

a second drive part, connected to a rotor of the second electric motor, comprising a second engaging surface facing outwards which engages the planetary rollers from a space located radially within the planetary cage.

And independent claim 17 recites:

A method for manufacturing an injection molded product, the method comprising:

varying a rotational direction and a rotational speed of a first and a second electric motor of an injection molding apparatus including a screw which extends in a cylinder, the cylinder comprising a filling opening and a nozzle, the screw being drivingly connected to the first and second electric motors by a driving connection, the driving connection comprising a number of cylindrical planetary rollers accommodated for rotation in a planetary cage such that the planetary rollers can be engaged from a space located radially outside the planetary cage and a space located radially within the planetary cage, the planetary cage being connected to the screw in a manner secured against rotation and translation, ***a first drive part, connected to a rotor of the first electric motor, comprising a first engaging surface facing radially inward which engages the planetary rollers from the space located radially outside the planetary cage, and a second drive part, connected to a rotor of the second electric motor, comprising a second engaging surface facing outwards which engages the planetary rollers from a space located radially within the planetary cage, such that the planetary cage and the screw are operatively rotated and/or translated in an axial direction according to a desired pattern*** and/or while exerting a desired axial force, wherein a power required for the axial translation is provided by the first and second electric motors and a power required for the rotation is provided by the first and second electric motors.

[Emphasis Added].

The cited portions of Butsch do not teach or suggest at least the above-emphasized features. For example, Butsch discloses a pulley-adjustable drive in which a sliding body 5 can be axially displaced by planetary rollers 10 driven by a drive source (i.e., motor 20). Thus, the pulley 2 can be adjusted in width for accommodating an infinitely variable adjustable belt transmission of a vehicle transmission. [See, e.g., Butsch, ¶ 17]. However, there is no indication or suggestion

in the cited portions of Butsch of providing a movement in rotational and/or axial direction that is imposed on a screw of an injection molding machine, much less engaging first and second drive parts, connected to the rotors of first and second electric motors, to the same planetary rollers.

For at least the foregoing reasons, reconsideration and withdrawal of the restriction requirement are respectfully requested.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Date: March 25, 2009

Respectfully submitted,

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